

**KNOWLEDGE PROBE 1: CONTEMPORARY WIRELESS TECHNOLOGY: CELL PHONES,
WIRELESS LOCAL AREA NETWORKS, AND SHORT-RANGE RADIO**
The Cellular Telephone System

Learning Objectives

1. Identify basic facts about cell phone development.
 2. Differentiate between generations of cell phones.
 3. Describe how cell phones communicate with base stations and other cell phones.
 4. Identify spectrum allocations used for cell phone operations.
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1. In a cellular telephone system, a cell is a(n)
 - a. Antenna
 - b. Area covered by a cell site
 - c. Circle
 - d. Radio transceiver
 2. What other entity do cell sites in a cellular system communicate with?
 - a. Internet
 - b. Mobile telephone switching office
 - c. Public switched telephone network
 - d. Wireless LAN
 3. What determines the size of a cell in a cellular system?
 - a. Antenna height
 - b. Surrounding objects
 - c. Transmitter power
 - d. All of the above
 4. How is cell coverage sectorized?
 - a. Adding more towers and antennas
 - b. Restricting subscribers to specific areas
 - c. Using special 120 degree coverage antennas
 - d. Using specialized software in the base station
 5. What happens when a subscriber moves from the area of one cell to an adjacent one?
 - a. The MTSO makes the switch over
 - b. The subscriber experiences a dropped call
 - c. The subscriber has to redial
 - d. The subscriber is automatically handed off from one cell to the next



6. When did the first cell phones show up?
 - a. The 1970s
 - b. The 1980s
 - c. The 1990s
 - d. After 2000

7. What technological development reduced the cell phone size from a car mounted unit to the pocket sized units of today?
 - a. Biotechnology
 - b. Higher density integrated circuits
 - c. Nanotechnology
 - d. Superconductivity

8. Which type of phone is NOT digital?
 - a. 1G
 - b. 2G
 - c. 2.5G
 - d. 3G

9. Most phones today are
 - a. 1G
 - b. 2G
 - c. 2.5G
 - d. 3G

10. What is the most commonly used wireless spectrum for US cell phones?
 - a. 700 to 785 MHz
 - b. 824 to 894 MHz
 - c. 950 to 980 MHz
 - d. 1200 to 1600 MHz

11. The PCS cell phone band is
 - a. 824 to 894 MHz
 - b. 890 to 950 MHz
 - c. 1850 to 1990 MHz
 - d. 2100 to 2300 MHz

12. Which band will future 3G cell phones use?
 - a. 824 to 894 MHz
 - b. 890 to 950 MHz
 - c. 1850 to 1990 MHz
 - d. 2100 to 2300 MHz

13. Downlink refers to the radio path from
 - a. Base station to user
 - b. User to base station



14. Another name for the uplink channel is
- a. Forward channel
 - b. Reverse channel
15. The minimal bandwidth of the channels in the PCS bands is
- a. 25 kHz
 - b. 30 kHz
 - c. 50 kHz
 - d. 1.25 MHz